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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,956	03/24/2005	C. Mauli Agrawal	5660-00503	8795
35690 7590 07/02/2007 MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL, P.C. P.O. BOX 398 AUSTIN, TX 78767-0398			EXAMINER NAFF, DAVID M	
			ART UNIT 1657	PAPER NUMBER
			MAIL DATE 07/02/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/506,956	<b>Applicant(s)</b> AGRAWAL ET AL.	
	<b>Examiner</b> David M. Naff	<b>Art Unit</b> 1657	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32,63 and 128 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32,63 and 128 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/24/05</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

A preliminary amendment of 9/8/04 canceled claims 33-62, 64-127 and 129.

Claims examined on the merits are 1-32, 63 and 128, which are all  
5 claims in the application.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

10 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter  
15 pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly  
20 owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35  
25 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-19, 21, 23, 25, 27, 29, 30, 32, 63 and 128 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al (4,927,676) in view of Mineau-Hanschke (6,582,391), and if necessary

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in further view of Hoffman et al (5,034,265) or Lee et al (6,033,582) or Hoffman et al (5,055,316).

The claims are drawn to method of preparing an implant by  
subjecting a substrate to gas-plasma treatment and exposing the  
5 treated substrate to living cells so a portion of the cells become  
coupled to the substrate, and produce more of a product than cells  
coupled to an untreated substrate.

Williams et al disclose attaching endothelial cells to a  
substrate by treating the substrate with a gas-plasma before attaching  
10 the cells (col 2, under "SUMMARY OF THE INVENTION", and col 4, lines  
48-59).) The substrate with the attached cells is implanted.

Mineau-Hanschke discloses providing a medically useful  
polypeptide to a patient by providing a matrix containing cells that  
secrete the polypeptide and implanting the matrix (col 4, lines 17-  
15 31). The cells in the matrix can be implanted to produce a wide range  
of cellular products including various growth factors (col 18, lines  
31-55).

Hoffman et al ('265) disclose using gas-plasma treatment to  
improve compatibility of biomaterials.

20 Lee et al disclose surface modification of medical implants by  
gas-plasma treatment.

Hoffman et al ('316) disclose gas-plasma treatment of a surface  
to provide tight binding of proteins to the surface.

It would have been obvious to use as cells attached to the  
25 substrate to be implanted of Williams et al, cells that produce a

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cellular product when implanted disclosed by Mineau-Hanschke to obtain the benefit of cells producing a product *in vivo* as disclosed by Mineau-Hanschke. Hoffman et al ('265 and '316) and Lee et al further disclose gas-plasma treatment of a substrate, and if needed would have suggested conditions that can be used. Cells attached to the plasma treated substrate will inherently produce more product than cells attached to an untreated substrate. The conditions of dependent claims would have been obvious from conditions disclosed by the references.

***Claim Rejections - 35 USC § 103***

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-19, 21, 23, 25, 27, 29, 30, 32, 63 and 128 above, and further in view of Berlowitz-Tarrant et al (5,840,387).

The claim requires human aortic endothelial cells.

Berlowitz-Tarrant et al disclose attaching aortic endothelial cells to a surface that can be an implant (col 5, lines 40-65).

When using cells that produce a product as the cells of Williams et al as set forth above, it would have been obvious to use aortic endothelial cells as the cells as suggested by Berlowitz-Tarrant et al disclosing attaching aortic endothelial cells to a surface for implanting.

***Claim Rejections - 35 USC § 103***

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-19, 21, 23, 25, 27, 29, 30, 32, 63 and 128 above, and further in view of Smith et al (5,580,779).

5       The claim requires myocardial cells.

Smith et al disclose using myocardial cells to produce a peptide *in vivo* (col 5, lines 3-8).

When using cells that produce a product as the cells of Williams et al as set forth above, it would have been obvious to use myocardial  
10       cells to produce a peptide as suggested by Smith et al.

***Claim Rejections - 35 USC § 103***

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-19, 21, 23, 25, 27, 29, 30, 32, 63 and 128 above, and further in view of Zonneveld et al  
15       (6,447,768).

The claim requires the cellular product to be a nucleic acid.

Zonneveld et al disclose delivering a nucleic acid *in vivo* with a cell that produces the nucleic acid to provide gene therapy (abstract and paragraph bridging cols 3 and 4).

20       When using cells that produce a product as the cells of Williams et al as set forth above, it would have been obvious to use cells that produce a nucleic acid to provide gene therapy as suggested by Zonneveld et al.

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*Claim Rejections - 35 USC § 103*

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-19, 21, 23, 25, 27, 29, 30, 32, 63 and 128 above, and further in view of Beckmann et al (6,306,615).

The claim requires the cellular product to be beta-tubulin.

Beckmann et al disclose beta-tubulin-producing cells (col 16, lines 15-19).

When using cells that produce a product as the cells of Williams et al as set forth above, it would have been obvious to use cells that produce beta-tubulin to obtain its function as suggested by Beckmann et al.

*Claim Rejections - 35 USC § 103*

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-19, 21, 23, 25, 27, 29, 30, 32, 63 and 128 above, and further in view of Mineau-Hanschke (6,419,920).

The claim requires vascular endothelial growth factor as the cellular product.

Mineau-Hanschke discloses vascular endothelial growth factor as a cellular product (col 4, lines 41-42).

When using cells that produce a product as the cells of Williams et al as set forth above, it would have been obvious to use cells that produce vascular endothelial growth factor as suggested by Mineau-Hanschke.

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***Claim Rejections - 35 USC § 103***

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-19, 21, 23, 25, 27, 29, 30, 32, 63 and 128 above, and further in view of Newman et al (6,087,331).

5       The claim requires platelet-endothelial cell adhesion molecule-1 as a cellular product.

Newman et al disclose therapeutic use of platelet-endothelial cell adhesion molecule-1 and cells transformed to produce platelet-endothelial cell adhesion molecule-1.

10       When using cells that produce a product as the cells of Williams et al as set forth above, it would have been obvious to use cells that produce platelet-endothelial cell adhesion molecule-1 as suggested by Newman et al.

***Conclusion***


15       Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

20       If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
David M. Naff  
Primary Examiner  
Art Unit 1657

DMN

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